

Amendments to the Claims

The following listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

What is claimed is:

1-4 (Canceled)

5. (Currently amended) The fusion protein according to claim 4 claim 23, wherein the Period protein is a human Period protein.

6. (Previously presented) The fusion protein according to claim 5, wherein the human Period protein is human Period1 protein.

7-10 (Canceled)

11. (Withdrawn) A method of delivering a compound of interest into a cell, comprising contacting a cell with a fusion protein according to claim 1.

12. (Withdrawn) The method of delivering a compound of interest into a cell in vitro, comprising contacting a cultured cell with a fusion protein according to claim 1.

13. (Withdrawn) The method of delivering a compound of interest into a cell ex vivo, comprising contacting a cell with a fusion protein according to claim 1 and introducing the cell into the body of a patient.

14. (Withdrawn) The method of delivering a compound of interest into a cell in vivo, comprising administering to a patient a fusion protein according to claim 1.

15. (Withdrawn) A method for identifying a membrane penetrating peptide, wherein a peptide comprises a sequence -(X-X-X-X)n- where n is an integer 1 to 7, and X each time is independently selected from the group consisting of arginine,

histidine or lysine, by generating a conjugate peptide comprising the sequence -(X-X-X)n- where n is an integer 1 to 7, and X each time is independently selected from the group consisting of arginine, histidine or lysine, with a detectable protein, adding the conjugate peptide exogenously to a cell and determining if the conjugated peptide is located within the cytoplasm and/or nucleus of the cell.

16. (Withdrawn) A method for identifying a membrane penetrating peptide, wherein a peptide comprises a sequence derived from or overlapping with a nuclear localization sequence of a mammalian or yeast protein, by generating a conjugate peptide comprising the part or all of the nuclear localization sequence with a detectable protein, adding the conjugate peptide exogenously to a cell and determining if the conjugated peptide is located within the cytoplasm and/or nucleus of the cell.

17. (Withdrawn) The method of delivering a compound of interest into a cell, comprising administering to a cell a fusion protein according to claim 1, wherein the membrane penetrating peptide comprises a sequence -(X-X-X-X)n- where n is an integer 1 to 7, and X each time is independently selected from the group consisting of arginine, histidine or lysine.

18. (Canceled)

19. (Currently amended) The fusion protein of claim 18, claim 23 wherein the ~~compound of interest organic molecule~~ is directly chemically attached to the membrane penetrating peptide or by a linker.

20. (Original) The fusion protein of claim 19, wherein the linker is an amino acid linker or a polypeptide linker.

21. (Currently amended) The fusion protein of claim 18 claim 23, wherein the membrane penetrating protein is produced by recombinant technology, chemical synthesis or degradation of a precursor protein.

22. (Currently amended) The fusion protein of claim 1, claim 23 wherein the compound of interest organic molecule is a small organic molecule, peptide, protein, lipoprotein, glycoprotein, polysaccharide, oligonucleotide, or antisense oligonucleotide.

23. (New) A fusion protein for delivery of an organic molecule into a cell comprising a membrane penetrating peptide attached to said organic molecule, wherein the membrane penetrating peptide is derived from a nuclear localization sequence or overlaps with a nuclear localization sequence of a mammalian or yeast protein, wherein the nuclear localization sequence is derived from a transcription factor, wherein the transcription factor is a Period protein.